1918.

Printed under No. 3 *Report from Printing Committee,* 25 *September,* 1919.

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General.
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New Rockeries.—The old rockery on lawn No. 2, situated just through the middle gates leading from the Middle into the Lower Garden, has been demolished, and a new one erected lower down the path, which will be devoted chiefly to a collection of Phylocacti, mostly hybrids raised in these Gardens. Moving this rockery lower down the path has created a pleasing vista from the kiosk across the lawn looking north-east, and has isolated a very fine specimen of *Phœnix reclinata*. Another new rockery has been made at the foot of the rocks on the corner of lawn No. 25. This part was planted with shrubs, but young people would persist in making "cubby houses" under them, so that, while this rockery will look charming with its collection of Aloes, it is now a very uncomfortable place to recline in.

Removal of a Mound.—A mound covering a quarter of an acre, with steep banks that required a good deal of maintenance and served no adequate purpose, was demolished, the material, 1,500 loads, being used to raise lawn No. 18, mentioned above. This area was then drained, trenched, and planted with a collection of each of the ten classes of Dahlias determined this year by a conference convened by the Horticultural Society of New South Wales, viz. :—Cactus, Paeony, Garden Paeony, Collarette, Show, Pompone, Single, Star, Tree, and Decorative.

Humus Pits.—Three large pits have been made with strong stone walls in the depôt, to receive all garden refuse, such as grass, leaves, and all rubbish that will decompose and make humus, to be carted back into the garden as plant food. These pits are 4 feet deep with walls 3 feet above the surrounding ground, but so constructed that carters can back their carts close to and tip their loads into the first two pits, and back their carts into the third pit for carting away. This satisfies a long-felt want; humus is made conveniently with a minimum of expense of cartage of the raw material and of the finished article. This large accession of humus, in our hungry sand, will become increasingly beneficial to the garden as time goes on.

Trial Ground.—Experiments in electro-culture were made throughout the year with almost negative results. One interesting feature was noted. Two separate areas of potatoes were planted under the same conditions, one area being charged with a low, intermittent current, then with a continuous one, until harvesting. Both plots produced the same weight of tubers, but the haulm of the control crop without the current went to rest and was dormant when dug, while the haulm of the area charged continued to grow. This did not appear to make any difference in the quality of the tubers, which, on cooking, were the same. Other trials were made with French beans, onions, radishes, and lucerne.

Tobacco Hybrids.—The Tobacco Expert of the Department of Agriculture submitted the following varieties of Nicotiana for further crossing :—White Burley, Dungowan, Yellow Pryor, and a Dungowan x White Burley cross. The seed was sown on 28th August, White Burley germinating a few days before the others. They were planted the last week in September, and by keeping them moving without a check produced some wonderful growth. The desired crossings were made and seeds selected for further experiments, while leaves were selected and cured for exhibition purposes.

Taro.—Mr. W. S. Campbell, sent plants of the Uganda (Africa) Taro, which proved to be [illegible] *antiquorum*; also of the Chinese Taro, which is similar in appearance to the Hawaiian Taro; these have not flowered.

Dasheen.—The Trinidad Dasheen, *Colocasia antiquorum* Schott var. *esculenta* (Syn. *C. esculenta* Schott). In May, 1915, five tubers named "Dasheen, *Colocasia* sp." were received from the Bureau of Plant Industry at Washington. They did not arrive in very good condition, and only two could be made to grow. One of these was kept under glass in a pot and the other was planted in the trial ground in August, but the weather proved too cold, for it gradually became dormant again, and as the summer advanced it came into growth in a very weak way, just the same as a tuber will after having been forced.

In March, 1916, twelve more tubers, under the name of Trinidad Dasheen, were received from the same source in good condition. These were kept moving slowly until December, when they were planted with six tubers propagated from the 1915 tuber which had been under glass. These eighteen plants grew well, but did not mature by the following autumn, so were left in the ground and did not stop growing. This suggested that they would either not mature a crop in one season or that they had been planted too late.

In April, 1917, a further eight pounds of tubers were received from Washington under the name of *Colocasia esculenta*. Of these, thirty-six sound tubers, averaging 3 oz. each, were selected and kept in a dry place like Dahlia tubers until the middle of August, when they were started into growth in a cold frame facing north. In the middle of September they were planted in soil manured at the rate of 40 tons per acre with rotted stable dung in rows 4 feet apart and 2 feet in the row. They matured in June, 1918, and when dug, without disease or rot, weighed 182 lb., two-thirds being of a culinary size, and the remainder offsets suitable for planting. This proved that the vegetable can be grown in one season, taking eight to nine months to mature.

In the quick-growing weather of December, January, and February they form a "hill," and unless they are planted at least 6 inches below the surface, earthing-up will be necessary. No extra food was given beyond the manure in the soil before planting, and very little artificial water was given.

In another trial, a few plants proved to be gross feeders without injury to the tuber, and without any apparent difference in flavour. In the growing season they were watered occasionally with liquid manure, and in January given a dressing of blood and bone. They also had copious supplies of water. This increased the height of the foliage from 3 to 5 feet, and the yield of tubers from 5 to 8 lb. per "hill." The maximum weight per corm or tuber is from 2 to 3 lb., with a corresponding increase in the cormels or offsets. No gross feeding should be given after February (in our coastal districts), or there will be a difficulty

Cichorium Intybus, Chicory, has proved, like Belladonna, that it does [illegible] marketable roots; the plants, however, do well with little attention.

Lobelia inflata L., sown in pans and transplanted in September, did well, but no assay of this crop was made.

Vervain, *Verbena officinalis* L.; Tansy, *Tanacetum vulgare* L.; Spearmint, *Mentha viridis* L.; Southernwood, *Artemisia abrotanum* L.; Rue, *Ruta graveolens* L.; Peppermint, *Mentha piperita* Sm.; Pennyroyal, *Mentha Pulegium* L.; Lavender, *Lavendula vera* DC.; Foxglove, *Digitalis purpurea* L.; Dill, *Anethum graveolens* Benth.; Borage, *Borago officinalis* L.; Balm, *Melissa officinalis* L. have all proved successful, and can be grown with little trouble.

The following were failures, but will be tried again under different conditions :—

Turmeric, *Curcuma longa* L.; the Tonka Bean, *Dipteryx odorata* Willd.; Senna, *Cassia acutifolia* Del; Liquorice, *Glycyrrhiza glabra* L.; Golden Seal, *Hydrastis canadensis* L.; Ginseng, *Panax quinquefolium* L.; Ginger, *Zingiber officinale* Rosc.; Coca, *Erythroxylon Coca* Lamk.; Chamomile, *Anthemis nobilis* L.; Buchu, *Barosma betulina* Bart. and Wendl.

Valuable Donation of Plants.—Just before the year closed, the State received one of the finest and most valuable donations of plants ever made to these Gardens, by the generosity of Mrs. Burton Bradley, widow of H. H. B. Bradley, of "Grantham," Alfred-street, North Sydney. These Gardens are now the home of the famous Burton Bradley collection of Hippeastrums and Crinums, possibly the finest in the world, and many other fine collections of bulbous plants.

The Hippeastrums number 4,730 flowering bulbs, with their offsets, and many seedlings. This collection includes several species and sixty named hybrids, some of which are the finest in cultivation, and represent the patient work of thirty-six years.

The Crinum collection, containing 635 flowering bulbs and many seedlings, represents almost all the known species, many hybrids, some of which are named, having been granted first-class certificates by the Floral Committee of the Horticultural Society of New South Wales, and many seedlings without records. This is especially valuable as a guide to those who carry on hybridisation work, the records of which show that it extends over a period of forty-four years.

Three thousand bulbs of Amaryllis Belladonna hybrids, including the famous albino Hathor.

Seventy-two plants of Clivia miniata hybrids. These are equal to any that have been imported so far.

Two hundred and fifty corms of Gladioli, being the progeny of many valuable named imported varieties.

One hundred tubers of the Grantham hybrid Gloriosa, *G. Plantii* X *G. superba*, the flowers being equal in form and colour to *G. superba* and as hardy as *G. Plantii*.

Seventy-five

,, *rubro-violacea forma hybrida.*
,, *Salm-Dyckiana* Schult fil.
,, *virens* Haw.
,, *Winteri* Berg.
Sempervivum Wulfeni Hopp.
,, *Gandinii* Christ.
,, *canariense* L.
,, *Lindleyi* Webb.
,, *bontignyanum* Billot and Gren.
,, *hopaonikense* Panc.
,, *mettenianum* Schnittsp.
,, *Pomelii* Lamotte.
,, *Reginæ-Amaliæ* Baker.

,, *Ellemeetiana* C. Koch.
,, *Franzosini* Nissen.
,, *polyacantha* Haw.
,, *rupicola* Regel.
Crassula multicava Lem.
,, *trachysantha* Haw.
Echeveria gibbiflora DC.
,, *californica* Hort.
,, *platyphylla* Rose.
,, *pulchella* Berger.
,, *spathulifolia* L.

Eucalyptus.—It is safe to say that the collection of Eucalypts under cultivation in these Gardens at the end of this year is the most comprehensive in the world. Deaths occur in plants gathered from districts of so many soils and climates, and there may not be room eventually for all the largest species. The list is as follows :—

Eucalyptus acaciæformis.
,, *acmenioides.*
,, *affinis.*
,, *aggregata.*
,, *amygdalina.*
,, *Andrewsi.*
,, *angophoides.*
,, *annulata.*
,, *Baileyana.*
,, *Bakeri.*
,, *Bancrofti.*
,, *Baueriana* and var. *conica.*
,, *Behriana.*
,, *Benthami.*
,, *bicolor.*
,, *Blackburniana.*
,, *Blakelyi.*
,, *Boormani.*

Eucalyptus botryoides.
,, *Brownii.*
,, *buprestium.*
,, *Caleyi.*
,, *calophylla.*
,, ,, var. *rosea.*
,, *camphora.*
,, *capitellata.*
,, *cinerea.*
,, ,, var. *nova-anglica.*
,, *cladocalyx.*
,, *Clelandi.*
,, *Cloeziana*
,, *coccifera.*
,, *Consideniana.*
,, *cordata.*
,, *coriacea.*
,, *cornuta.*

,, *incrassata* var. *angulosa*.
,, ,, ,, *conglobata*.
,, *Kirtoniana*.
,, *Kitsoni*.
,, *Kybeanensis*
,, *Lehmanni*.
,, *leptopoda*.
,, *leucoxylon*.
,, ,, var. *rosea*.
,, ,, ,, *macrocarpa*.
,, *linearis*.
,, *longifolia*.
,, *loxophleba*.
,, *Macarthuri*.
,, *macrandra*.
,, *macrocarpa*.
,, *macrorrhyncha*.
,, *maculata*.
,, ,, var. *citriodora*.
,, *maculosa*.
,, *Maideni*.
,, *marginata*.
,, *megacarpa*.
,, *melanophloia*.
,, *melliodora*.
,, *microcorys*.
,, *microtheca*.
,, *Moorei*.
,, *Morrisii*.
,, *Muelleri*.
,, *neglecta*.
,, *nitida*.
,, *normantonensis*.
,, *obcordata*.
,, *Rudderi*.
,, *rudis* var. *elata*.
,, *saligna*.
,, *salmonophloia*.
,, *salubris*.
,, *scoparia*.
,, *Seeana*.
,, *sepulcralis*.
,, *siderophloia*.
,, *sideroxylon*.
,, *Sieberiana*.
,, *Smithii*.
,, *spathulata*.
,, *squamosa*.
,, *stellulata*.
,, *Stowardi*.
,, *striaticalyx*.
,, *Stuartiana*.
,, *tereticornis*.
,, *terminalis*.
,, *tesselaris*.
,, *tetragona*.
,, *tetraptera*.
,, *torquata*.
,, *trachyphloia*.
,, *transcontinentalis*.
,, *umbra*.
,, *uncinata*.
,, *urnigera*.
,, *vernicosa*.
,, *viminalis*.
,, *virgata* (*Luehmanniana*).
,, *vitrea*.
,, *Watsoniana*.

Seed of some interesting and beautiful *Eucalyptus calophylla* hybrids were received from Dr. Prior, of Rydalmere, which germinated, and have been planted in the Gardens, Inner Domain, and Outer Domain.

General

Despatched.

Advisory Council of Science and Industry, Melbourne, Victoria; Director of Agriculture, Central Provinces, Nagpur, India; Giza Mouderich, Ministry of Agriculture, Egypt; Department of Agriculture, Rhodesia, South Africa; School of Horticulture, Burnley, Victoria.

Firms and Private Individuals.

Received.

Aldis, A. E., Katoomba, N.S.W.; Anderson & Co., Ltd., Sydney; Banfield, E. J., Dunk Island, Queensland; Cheel, E., Sydney; Fuller, Miss A., Sydney; Frick, Henri, San Jose, Costa Rica; Hamilton, A. A., Sydney; Hird, —., Sydney; Hould, W. H., Sydney; Lance, C. C. Sydney; Lawrence, A. H., Uranga, N.S.W.; Lucas, A. H. S., Sydney; Lawrie, T., Beecroft, Sydney; Parke, Davis & Co., Sydney; Prior, Dr. C. V. U., Rydalmere, N.S.W.; Parry, R., Perth, W.A.; Petrie, D., Epsom, N.Z.; Pulleine, Dr. R. H., Adelaide; Robinson, C., Gosford, N.S.W.; St. John, P. R. H., Melbourne; Simmonds, Rev. J. H., Auckland, N.Z.; Sinclair, Dr. E., Sydney; Tonduz, Senor, Costa Rica; Webb, J., Manly, N.S.W.; Weston, C., Canberra, Federal Territory; Wragge, C. L., Auckland, N.Z.; Yates, H. D., Sydney.

Despatched.

Anderson & Co. Ltd., Sydney; Aiken, H. C., Adelong, N.S.W.; Christ, Monsieur E., Avirons, Ile de la Reunion; Duncan and Davies, New Plymouth, N.Z.; Deer, Miss, Training College, Sydney; Edwards, W. C., London; Fogwell, R. C., Richmond River, N.S.W.; Haviland, Archdeacon, Coonamble, N.S.W.; Hills, Rev. J. W., Samoa; Jordan, Rev. J. E., Newcastle, N.S.W.; Pulleine, Dr. R. H., Adelaide, S.A.; Summerlin & Co., Brisbane, Queensland; Walkom, A. B., Queensland University, Brisbane.

In addition to the above, 105 applications were received for Tagasaste seed, which were complied with.

Living Plants Received and Despatched.

Received.

Burton Bradley, Mrs., North Sydney; Bracy, —., Wahroonga, Sydney; Dixson, Hugh, Summer Hill, Sydney; Edgely, Mrs. J., Rockhampton, Queensland; Foster, A. W. J., Sydney; Froggatt, W. W., F.L.S., Sydney; Hamilton, A. A., Sydney; Kuwahata, H., Guildford, N.S.W.; Lucas, A. H. S., Sydney; Mouncey, Mrs. de, Fiji; Pulleine, Dr. R. H., Adelaide, S.A.; Steel, T., Sydney; Whitelegge, T., Sydney.

Despatched.

Nursery, Campbelltown, page 16.

AVIARY.

Presentations.

1 Crow, from Mrs. Taylor, Artarmon; 1 Leadbeater Cockatoo, Mrs. Russell French, Bellevue Hill, 1 Magpie and 1 Rosella, Mr. Muirhead, Darlinghurst; 3 Doves, Master James Harrod, Rozelle; 1 Sulphur-crested Cockatoo, Mrs. Jackson, Strathfield; 1 Sulphur-crested Cockatoo, Mrs. Leslie, Woollahra; 2 Canaries and 1 Strawberry Finch, Mr. Kingsford Smith, Mosman; 1 Blue Mountain Lory, Mrs. Carter, Stanmore; 1 Green Mexican Parrot, Mr. A. Martin, Lower Domain; 1 Long-billed Cockatoo, Dr. Fullerton, Ashfield; 1 Galah Parrot, Miss Scott, Artarmon; 1 Galah Parrot, Mr. J. Yates, Sydney; 1 Sulphur-crested Cockatoo, Mr. Solomon, Sydney; 1 Australian Pheasant, Cuckoo (donor unknown); 2 Muscovy Ducks, Mrs. A. B. Fielder, Marrickville; 9 Laughing Jackasses, from Police Department.

Caught by Aviary-keeper.

1 Galah Parrot.

Settled on Ponds in Lower Garden.

4 Black Moor Hens.

Purchases.

12 Zebra Finches, 12 Spotted-sided Finches, 12 Chestnut Finches, 12 Red-headed Finches, and 6 Rosellas.

Deaths.

1 Nun Pigeon, 1 Plover, 4 Zebra Finches, 1 Spotted Bower Bird, 1 Leadbeater Cockatoo, 4 Diamond Sparrows, 1 Turtle Dove, 1 Bronze-winged Pigeon, 1 Wonga Pigeon, 1 Laughing Jackass, 1 Strawberry Finch, 3 Rosellas, 1 Bower Bird, 1 Hybrid Pheasant, 2 Black Swans, 1 Java Sparrow, 1 Common Amazon Parrot, 6 Red-headed Finches, 1 Blue Mountain Parrot, and 1 Crow.

Escaped.

1 Golden Pheasant (Hen).

During the year there has been a large number of donations, but it was found necessary to purchase a few birds to make good our losses, which have been partly caused through the large numbers of mice infesting the cages containing small birds. Special efforts are being made to cope with this nuisance. The floors of the cages have been cemented and all the holes plugged up, and all possible means of preventing them from entering the cages, short of poison, have been used. The roofs of the cages have been repaired with iron, and all the cages whitewashed.

The

Mr. J. Marrott, temporary Clerk, was transferred to the Dairy Branch of the Department of Agriculture on the 31st December, 1918.

Miss M. Bates, from the State Wheat Office, was appointed to the position of temporary Junior Assistant to the Agrostologist on the 11th November, 1918.

Progressive Society.—During May, 1917, a society named the Botanic Gardens Department Progressive Society was formed, having for its object "To encourage and assist in the study of all branches of Horticulture, by a library, lecturer, papers, discussions, excursions, and a manuscript journal of proceedings." All employees, past and present, are eligible for membership at a nominal fee of 2s. per annum, the Director being elected Patron; Mr. E. N. Ward, the Superintendent, the first President; and Mr. R. Mitchell, Foreman, the first Honorary Secretary. The meetings are held monthly in the men's dining room, Botanic Gardens, and tea is provided to save time of members in travelling to and from their homes in the suburbs. From its inception the meetings have been well attended, the present membership standing at 30, with an average attendance of 20.

All the papers and subjects for discussion are of an educational character, and the following may be given as examples:—Pruning notes; the soil and its preparation; propagating by budding and grafting; the acquaria; notes on spring flowering shrubs; methods of judging; the bush-house; plant breeding; Mendel's law; landscape gardening; scale pests of our gardens.

Excursions are taken quarterly on Saturday afternoons to leading suburban gardens, and one whole-day excursion to the Hawkesbury Agricultural College. A library of over a hundred books has been lent by the Director, and the Society has appointed a librarian. The Society shows useful promise in developing mentality and encouraging study, and so fitting members for their particular vocation.

Patriotic Organisation.—At the beginning of the war a general meeting of employees was held, when a Patriotic Committee was elected to authorise and arrange for collections for patriotic purposes and others matters emanating outside the sub-department. The Director was ex-officio President. A smaller committee was elected soon after this to arrange for presentations and send-offs to those enlisting, and later on this was enlarged to include a "welcome home" to returning comrades. A part of its duty, too, was the sending of a monthly letter to each man away, giving all the passing items of Garden news, keeping in touch with them. We have abundant evidence that this has cheered and heartened them not a little. The soldiers' letters in return were read to the men at home, and so the spirit of comradeship was fostered and developed. This committee also sent parcels quarterly to a comrade prisoner of war in Germany, and also a cable to a badly wounded comrade. Mr. Robert Mitchell was honorary secretary, and his work was deserving of great praise. His newsy monthly letters typed to every one of our absent comrades were alike interesting and instructive.

fairly numerous, and in addition [illegible] specimens for identification and report as to their uses or harmful effects. The following collections have been identified :—

Agaricaceae.

Paxillus paradoxus—Bundanoon, T. H. Pincombe.
Amanita strobiliformis (?) (*Lepiota achrophyllus* Cooke and Mass.)—Blue Mountains, A. Griffith.
Amanitopsis pulchella—Port Jackson, Miss A. Brewster.
Cortinarius sp., probably *C. cinnamomens*—Port Jackson, Miss A. Brewster.
Hypholoma fasciculare—Port Jackson, Miss A. Brewster.
Lentinus strigosus—Hornsby, W. F. Blakely.
Also several specimens of this family too imperfect for determination.

Polyporaceae.

Boletus granulatus (?)—Blue Mountains, A. Griffith.
Polyporus australiana—Nattai River, *via* Hill Top, E. Cheel.
Polyporus rhipideum—Ourimbah, A. H. S. Lucas.
Polystictus cinnabarinus—Port Jackson, Miss A. Brewster.
Formes sp.—Bundanoon, T. H. Pincombe.

Lycoperdaceae.

Mycenastrum corium—Dumosa, Victoria (In Mallee), Rev. W. W. Watts.
Battarrea phalloidea—East Mirrool, Griffith, W. D. Campbell.
Phellorina strobiliformis—East Mirrool, Griffith, W. D. Campbell.
Calvatia rubro-flavum—Ashfield, E. Cheel.
Polysaccum pisocarpium—East Mirrool, Griffith, W. D. Campbell.
Geaster vittalus—Bundanoon, T. H. Pincombe.

Thelephoraceae.

Stereum caparatum (a deformed state)—Ourimbah, A. H. S. Lucas.
Stereum sp.—A. H. S. Lucas.

Tremellaceae.

Tremellodon gelatinosum—Ourimbah, A. H. S. Lucas.

Clavariaceae.

Clavaria inaequalis—Bundanoon, T. H. Pincombe.
Clavaria botrytes (?)—Bundanoon, T. H. Pincombe.

Pucciniaceae.

Large collections of mosses and hepatics have been sent to European specialists, and in some instances, partly owing to the war, no lists were returned, and in others lists of manuscript names were received years after the material had been sent. In exceptional cases a few were described by specialists nearly ten years after the list of names had been furnished. This delay resulted in a large number of packets of mosses being left without names in the herbarium, but the numbers on each afforded a means of identifying many of the species, and material in unnumbered packets collected at the same time and place has also been duly labelled.

Work of the Artist (Miss M. Flockton).—270 drawings in colour of Eucalyptus seedlings in various stages were made for the Director's research in regard to the affinities of the various species. Additional drawings were also made for Parts 36 and 38 of the "Critical Revision of the Genus Eucalyptus," and seven detail drawings for the general collection in the herbarium.

Twelve plates were lithographed for the "Critical Revision of the Genus Eucalyptus."

Death of Rev. Copland King, M.A.—Mr. King was a native of Sydney, and after a service of over twenty-five years with the Anglican Mission in New Guinea, he returned home to die, on the 5th October. He had been a valued correspondent of this establishment for many years, sending down herbarium specimens of various kinds from the dependency, and also some living plants. Of late years he specialised in ferns. Shortly before his death, he expressed the wish that his herbarium and botanical books should be presented to this establishment, and the transfer was carried out through the kind intermediary of his sister, Miss Ethel R. King, of Sydney, and of his colleague, the Rev. P. Charles Shaw, of Dogura. The herbarium consists of over one thousand specimens of ferns, together with a few other plants. It is most valuable, and many of the specimens have been determined by such authorities on the group as Prince Ronald Bonaparte, of Paris, and Dr. E. B. Copeland, of Manila. Mr. Thomas Whitelegge is critically examining them and incorporating them in the herbarium, every specimen being given a special label. Adjacent to the fern herbarium is a portrait of Mr. King, and thus a memorial has been constituted of an Australian botanist whose botanical work was carried on under difficulties that few Australians can even guess at.

A Botanical Assistant required for Polynesia.—Partly because of the geographical situation of Sydney, and partly because we cultivate, in the open and under glass, so many plants of interest to the Pacific Islands, the work of the herbarium in such plants has grown quite beyond us. I have not mentioned the matter of recent years, because of the war, but political changes owing to the war, and the necessity for diffusing information in regard to these islands (some of them Australian dependencies) will require a special botanical assistant for Polynesian plants at an early date. He would specialise on the flora of the Islands, free from other distractions.

Weeds of New South Wales. [illegible]

xxix, 110–111, 1918.)

A Weed new to Australia (*Chondrilla juncea*). (*Agric. Gaz. N.S.W.*, xxix, 330, 1918.)

Plants which produce inflammation or irritation of the skin. (*Agric. Gaz. N.S.W.*, xxix, 344–345, 1918.)

Vervain (*Verbena officinalis*). (*Agric. Gaz. N.S.W.*, xxix, 470, 1918.)

Another new Weed for New South Wales (*Richardsonia scabra*). (*Agric. Gaz.* N.S.W., xxix, 516, 1918.)

Note on the Juice of the Choko (*Sechium edule*). (*Agric. Gaz.* N.S.W., xxix, 531, 1918.)

Cotton in Australia. (*Agric. Gaz. N.S.W.*, xxix, 558, 1918.)

The Nomenclature of Tagasaste. (*Agric. Gaz. N.S.W.*, xxix, 819, 1918.)

The Food of Australian Birds. An investigation into the character of the stomach and crop contents. (A summary of work done by J. B. Cleland, J. H. Maiden, E. W. Ferguson, C. T. Musson, and W. W. Froggatt.) (Science Bulletin, Dept. of Agric., N.S.W., No. 15, p. 112, July 1918.)

Cheel, E.

Cleland, J. B., and Cheel, E. Australian Fungi: Notes and Descriptions, No. 1. (*Trans. and Proc., Roy. Soc. S.A.*, xlii, 88–138, 1918.)

Challinor, R. W., Cheel, E., and Penfold, A. R. On a new species of Leptospermum and its essential oil. (*Proc. Roy. Soc. N.S.W.*, lii, 175–180, 1918.)

Breakwell, E.

Popular Descriptions of Grasses:—

The Fescue Grasses (*Agric. Gaz. N.S.W.*, xxix, 38–41, 159–166, 1918).

The Rye or Lolium Grasses (xxix, 274–281).

The Poa Grasses (xxix, 387–395).

The Eragrostis Grasses (xxix, 548–558, 627–631, 780–785).

The Panic Grasses (xxix, 837–847).

Red Clover and its Varieties (*Agric. Gaz. N.S.W.*, xxix, 105–109).

Experiments with Sudan Grass (*Agric. Gaz. N.S.W.*, xxix, 559–567).

Elephant or Napier's Fodder Grass. Experiments during 1917–18 (*Agric. Gaz. N.S.W.*, xxix, 575–578).

Weed Seeds and Impurities in Imported Seeds (*Agric. Gaz. N.S.W.*, xxix, 633–638).

The Grain Sorghums (*Agric. Gaz. N.S.W.*, xxix, 685–695).

Ward,

Callistemon acuminatus × *lanceolatus*—Ashfield, M. Oliver.
Callitris calcarata—Wyalong, F. W. Wakefield.
Capparis nobilis—Casino, E. G. McLean.
Casuarina paludosa—Temora, C. O. Love.
Casuarina sp.—Newport, W. W. Froggatt.
Citrus aurantium—Henty, F. R. Woolnough.
Citrus limonum var.—Henty, F. R. Woolnough.
Citrus limonum var.—Sydney, W. M. Doherty.
Citrus limonum var.—Sydney, W. A. Birmingham.
Convolvulus erubescens—Deniliquin, R. E. Edwards.
Convolvulus erubescens—Barmedman, T. R. Donkin.
Convolvulus erubescens—Morangarell, Miss McGregor.
Cocos nucifera—Tonga, W. W. Froggatt.
Cosmos bipinnatus—Pennant Hills, T. Steel.
Cucurbita pepo—Wagga Wagga, J. Angel.
Dahlia variabilis—Sydney Botanic Gardens, W. F. Blakeley.
Datura sp.—Binnieguy, Dr. G. P. Darnell-Smith.
Dillwynia ericifolia—Abbotsford, A. Godby.
Eucalyptus amplifolia—Canley Vale, W. F. Blakely.
Eucalyptus numerosa—Bega, Jas. Taylor.
Eucalyptus paniculata—Cronulla, Frank Cridland.
Eucalyptus siderophloia—Dubbo, A. R. Samuels.
Eucalyptus tereticornis—Raymond Terrace, E. Cheel.
Euphorbia Drummondii—Pilliga, Dr. J. B. Cleland.
Ficus stephanocarpa—National Park, Dr. J. B. Cleland.
Pelargonium sp.—Sydney, Dr. J. B. Cleland.
Grevillea buxifolia—Sydney Botanic Gardens, R. Mitchell.
Haloragis tetragyna—Port Jackson, R. H. Cambage.
Isotoma axillaris—Wagga Wagga, Rev. J. W. Dwyer.
Lilium Henryi—Sydney, A. P. Sparke.
Opuntia inermis—Dr. G. P. Darnell-Smith.
Plantago lanceolata—Adelaide, Dr. J. B. Cleland.
Pyrus malus var.—Pennant Hills, T. Steel.
Rosa, Hort., var.—Artarmon, C. Woolnough.
Saccharum officinarum—Richmond River, M. S. Barnett.
Trifolium repens—W. A. Birmingham.
Zea Mays—Coonabarabran, H. Wenholtz.

The

was planted in one of the enclosures late in the year. [illegible] raised by the late H. H. B. Bradley, and are a great advance in form and colour from the type.

The Rosery.—This enclosure, to which the public are admitted daily, continues to be appreciated by visitors, many of whom take notes of the varieties grown with the view of adding to the collection in their own gardens. A number of the new varieties are planted each year, to replace those that are not quite up to the standard aimed at, or are liable to fungus diseases.

Children's Playground.—This little enclosure has continued to increase in popularity with the youngsters, to whom it is open daily except Sundays. The various pieces of apparatus are regularly overhauled and repairs effected if needed. One of the joy-wheels has been fitted with a back-rail to enable children to hold on while the wheel is in motion.

Music.—The South Sydney Champion Band gave four performances during the year, and on each occasion the public attended in large numbers. The Rotunda is situated in an excellent position for band recitals, and it would be a boon to the music-loving portion of the community if more frequent performances could be given.

Painting.—The painters' work for the year has been of a general character, which included the painting of the buildings and fences in and around the depôt, Rotunda, and Kiosk fences, tree guards, and the various picket fences throughout the Domain.

Roads and Paths.—A large portion of the roads and paths were top-dressed during the year, and where signs of breaking up were apparent, these parts have been re-made.

The traffic on the roads is now very heavy, particularly on that portion between the Art Gallery and the St. Mary's road entrance, on the days when returning troops are being conveyed to and from the Anzac Buffet.

Kerbing, &c.—The grass plots adjacent to the Ladies' Reserve have been kerbed, and sub-drains laid to carry off water from the footpaths where required. Kerbing has also replaced the grass bank on the southern and eastern boundary borders in the Rosery; in this way the borders are enlarged and the cost of maintenance considerably reduced.

To prevent the formation of ruts in the roadway at the two principal entrances to the Domain, where vehicular traffic is restricted to one track, it has been found necessary to lay stone paving for several yards on each side of the gates. The surface was top-dressed with tar and blue metal topping to give uniformity with the tarred road.

Changes in the Staff.—Mr. Henry Harrison, who had been employed as mason for upwards of ten years, retired from the service at the end of October. He was succeeded by Mr. Francis J. Read, who commenced duties on 1st November.

In

are all doing well considering the dry season. [illegible] fence, seven trees and five shrubs were planted to act as a break-wind and give more privacy when they grow up to that part of Government House grounds.

Wattle Day (*1st August*).—Sir Walter, Lady Davidson and their two young daughters each planted a wattle in Government House Grounds in commemoration of the day. The three returned soldiers on the staff (Messrs. Banbury, Mather and Driver) were also invited to plant a wattle. The invitation was availed of, and the wattles were planted in suitable places about the grounds.

Landing of the State Governor.—On Sunday, 17th February, His Excellency Sir Walter Davidson landed at Farm Cove at the Fleet Stairs. After being welcomed by the Premier, Mr. Holman, His Excellency motored to Government House, where he was received by the Lieutenant Governor, Sir William Cullen.

Inspections.—The annual inspection of the St. John's Ambulance Brigade was held on 11th May. There were twenty-six divisions represented. After the march past, His Excellency the Governor addressed them, and handed over a new Ambulance Car for use in the Eastern Suburbs. On 1st May the Governor inspected Carmichael's Thousand, on the drill lawn in front of Government House. After His Excellency had addressed and complimented them on their smart appearance, the Battalion was paraded through the main streets of the city.

Returned from the Front.—Private F. Driver returned from the front on 14th February, after an absence of one year and eight months. He was invalided home, and was met on his arrival by Messrs. Hawkey, Ruffels, Wenholz and Clarke, who welcomed him on behalf of the staff.

Anniversary Day.—Mr. R. J. Black, M.L.C., President of the Pioneer's Club, presided over a gathering of the public assembled at the Governor Phillip Statue on 26th January to commemorate the landing of Governor Phillip 130 years previously. After an appropriate address by the President, the Union Jack was "broken" from a flag staff at the foot of the statue, and cheers were given for the King and for the Flag.

Painting and Repairs.—The following buildings were painted and carpentering repairs effected where necessary, viz., stables, paint and carpenters' shop, dining room, office and tool shed, and the summer house in the Garden Palace Grounds.

Tar-painting.—The asphalt walks in the Garden Palace Grounds and the walk leading from Man-o'-War gate into Government House grounds were tar-painted and repaired, 850 gallons of tar being used.

Regrading.—Mr. H. Holt and Mr. T. Wenholz were regraded by the Public Service Board as Gardeners.

Drains, &c.—An 18-inch monier pipe drain was laid to convey [illegible] the Busby Bore lagoon; the first length was laid by the Woollahra Council, emptying into an open grass drain below the Queen-street gates. This open drain was soon washed away, so it was decided to continue the pipe drain, and an additional 1,000 feet of 18-inch monier pipes were put in and other drains were connected by brick chambers at intervals. The whole of the 1,000 feet and collecting chambers were put in by the Park staff, and the cost of materials was about £250.

At the time the drain was laid, several acres of land between Queen-street drive and Lang-road were given a heavy dressing of sand to kill the Parramatta-grass tussocks and to make it level for mowing machines; the result is as desired, the tussocks are killed and a good surface of sward obtained. The sand for dressing was obtained by reducing a mound conveniently on the spot, many hundreds of loads being used.

Areas under Maintenance.—The following is an approximate return of areas under maintenance:—(*a*) asphalt roads, footpaths and yards—about 150,000 superficial square yards; (*b*) flower beds and borders—about 6 acres under horticultural treatment, planted twice a year with two crops of seedlings; (*c*) shrubberies and palms—about 5 acres under spade cultivation; (*d*) rose garden—about 2 acres, all horticultural work; (*e*) grass lawns and playing grounds—about 80 acres mown by "Triumph" and hand mowers; (*f*) grass mown by scythe and "Hornsby" mower—about 100 acres; (*g*) the remaining area, consisting of bush, swamp and rocky land, ponds, &c., is kept clear, from time to time, of dead branches and noxious weeds.

Reservoir.—The Water and Sewerage Board have at last finished strengthening the side walls, and replaced the embankment; the top, I understand, has still to be dealt with. It is regrettable that this is not done, as young folks have been debarred from using the surface for tennis for nearly three years.

Rose Fête for Jack's Day.—A "Rose Fête" was held in October (which was rather a misnomer, as there were very few in bloom), and was a great success; a huge crowd, estimated at upwards of 100,000, were present. The whole affair, sports, &c., passed off well, and there was no damage to report.

V.A.D. Review.—In November the V.A.D's. had a review, and were inspected by Lady Davidson.

Thanksgiving Service.—During the same month a Thanksgiving Service for the end of the war was held in the Park, all denominations being represented. The service was presided over by Archbishop Wright (Church of England).

Music.—I am sorry to say there were very few performances in the rotunda during the year. It is a pity we cannot have them oftener, as they are so much appreciated by the crowds who frequent the Park on Sundays.

Plan

2 feet, and the growth it has made is surprising; every plant is growing. [illegible] acquisition to our species of Cupressus. Twelve *Acacia podalyriaefolia* were also planted at the same time, and they have made great growth, being now over 5 feet high and as much through. We planted a few other trees, and they are all doing very well.

The Cork Oak (*Quercus suber*).—In January, 1914, Sir Charles Mackellar, who had been travelling in Europe, very kindly presented to us a barrel of acorns of the Cork Oak. They became so badly heated in transit that I was afraid none would germinate, but owing to Mr. Hardie's care some germinated. In January, 1919, we had thirty-eight Oaks at the Campbelltown Nursery, twenty-eight in one plantation, and ten in another. The largest plants were then 13 feet high and looking well. The Cork Oak has been introduced to Australia for very many years, and there are some fairly large trees in different States, but some of them disappear, and it is always a pleasure to get additional trees. In the early future I do not doubt that the Forest Departments of the various States will make the Cork Oak a subject of their plantations to a much greater extent than has been done in the past.

Arboretum.—The trees in this plantation are all looking very well and bearing good crops of seed. The Tilias are flowering very well, and I expect a good crop of fruits. The Caryas are fruiting very well; *C alba* has a heavy crop of fruit; but the *Juglans* have a very poor crop of nuts this season. The *Ceratonias* had their fruits all cut off with the frost, so we will be without seed of this good tree this season.

Seedlings.—The results with the seedlings have been very good this season, as all the seeds have germinated well. The Eucalyptus have done well and all are looking well, and give promise of becoming good plants for distribution.

Bush Houses.—The bush houses are looking splendid just now, and we have a first-class lot of plants in the second and third year. The bush house which we set aside for housing the seedlings requires repairs.

Damage done by Frost.—The damage done to plants last winter was very serious. The Ficus, Jacarandas, Hibiscus and *Tristania conferta* were all cut down to the pots, although they were in the bush house and covered with hessian as well. The *Archontophoenix Cunninghami* was killed right out, and so were the *Howea Belmoreana* and *Fosteriana*. The Phœnix palms did not suffer so much, but all were touched. Bougainvilleas and *Bignonia venusta* were all killed in the bush house, one large tree of *Eucalyptus citriodora* and all the young Sugar Gums were cut right back; even the Blackbutt (*Eucalyptus pilularis*) in the bush lost all their leaves. No one in Campbelltown remembers so severe a winter. There is a very large *Ficus macrophylla* standing in the main street of Campbelltown; it has been there for thirty years, and this is the first time the frost has taken effect upon it. Every leaf came off and about 1 foot was cut back all over the tree.

Fences

Trees	32,838
Shrubs	11,440
Miscellaneous plants	27,589
Grand Total	71,867

Seeds received.—The seeds of Pekin Pear received from Mr. Sutton, Commercial Commissioner in the East, on 20th January, 1917, were sown in pots. Two seeds germinated, 14th May, 1917. These plants were potted on 26th November, 1917, planted out 30th August, 1918, and on 31st December, 1918, one plant was 4 feet high.

We have also received seeds from Dr. G. M. Slade, Macquarie-street, Sydney; Mr. Bick, Brisbane; Dr. Perez, Teneriffe, Hill View, Moss Vale; Miss Macarthur Onslow, Camden Park; Mrs. Payton, and Messrs. Hewett, Allen, and Day, Campbelltown.

Sydney: William Applegate Gullick, Government Printer.—1920.

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Fences.—We have completed the fencing of the western and south-western boundaries. This is now a first-class fence; all we require on this side is flood gates, so we may be able to complete these one day, if we can get one or two trees large enough to make the span. We have only the eastern side to complete, and that will stand for some time.

Packing and Potting House.—When we put up the potting and packing shed we did not have time to put in a good floor, but last March we took all the old flooring up and put in a good concrete one, which has stood the test well.

Painting.—During the autumn the cottage and office received two coats of paint.

Distribution of Plants.—The distribution of plants for 1918 was not so large as the three years previous, but the very dry winter would partly account for this, as it was impossible to break up land to plant, and then it was too dry in many districts.

Institution.	No. of Consignments.	Trees.	Shrubs.	Miscellaneous Plants.
Public Schools	198	4,057	799	2,540
Railways	20	157	64	279
Tramways	4	400	6	1,300
Botanic Gardens, Sydney	10	5,779	3,602	6,172
Inner Domain	1	31	130	43
Hospitals	21	1,845	1,359	1,958
Charitable Institutions	2	162	48	352
Parks and Reserves	4	216	402	50
Convents	30	979	926	2,673
Churches—Church of England	13	471	269	320
Roman Catholic	17	1,088	285	1,653
Presbyterian	3	13	186	466
Methodist	5	233	120	6
Congregational	1	44	51	3
Christ	1	18	.....	2
Experiment Farms	5	262	137	471
Municipal and Shire Councils	104	11,341	1,244	4,799
Cemeteries	9	612	1,078	627
Pastoral and Agricultural Societies	4	240	30	104
Progress Associations	7	680	4	27
Court Houses and Police Stations	12	110	130	755
Abattoirs	2	332	6	.....
Military Camps	4	358	41	300
Water and Sewerage Board	1	54	.....	4
Miscellaneous	7	830	214	352
Colleges	9	849	203	2,273
Honour Avenues	20	1,677	106	60

Plant stealing and Vandalism.—This, I am sorry to say, is on the increase; not only do small seedlings disappear in great numbers, but plants from established shrubberies and the rose garden are taken. For instance, when the rosery was replanted this season, it was found necessary to fence it off temporarily; before this was done as many as fifty plants were taken in one night, which is very disheartening, as the interference in the grouping spoils the effects hoped to be obtained.

Police.—The foot police still employed do their duty as far as they are able over the large area they have to patrol, but the damage by straying stock is still very considerable, and the training of horses and turning them out to graze is very much on the increase, especially in Queen's Park. In mentioning this I may say it is not meant to reflect on the foot police, as it is impossible for them to catch riders of racehorses or to round up straying animals. I sincerely hope that it may be found desirable to substitute horse patrols in place of, or as a supplement to, foot police.

Staff.—Mr. A. Sergeant, Mr. J. Taylor, and Mr. J. Thompson commenced extended leave of absence prior to retirement under the Superannuation Act, 1916.

Retirement.—Mr. G. Turner, Storeman, finished his extended leave of absence and retired on 12th September, 1918.

STATE NURSERY, CAMPBELLTOWN.

(Mr. W. Hardie, Superintendent.)

Weather.—January was a very good month, as we had nice rain; temperature 102 degrees, min., 43 degrees (very low). February was a very hot and close month, but we had very fair rain; max. 99 degrees, min. 40 degrees. March was a beautiful month, max. 89 degrees, min. 38 degrees. April was pleasant, with very slight rain; max. 82 degrees, min. 35 degrees. May was a very good month, but very dry. We had the first frost on the 18th; max. 72 degrees, min. 31 degrees. June was a very frosty month, and the plants suffered very much; max. 62 degrees, min. 22 degrees. July was the most severe month, as everything tender was frosted; in fact cut to the ground; max. 62 degrees, min. 17 degrees. August was dry and windy, and not good for the planting out of young and tender plants, but we had to push on with the transplanting. September was also dry and windy, and bad for plant-life—max. 74 degrees, min. 24 degrees. October was even worse than the preceding months for very dry winds, and very bad for the young seedlings planted out; they continued all the month; max. 92 degrees, min. 42 degrees. November was still dry and windy, and, speaking generally, the season was the worst we have had; max. 94 degrees, min. 44 degrees. December was the driest month and also the hottest. There were bush fires all round this district; max. 102 degrees, min. 49 degrees.

Planting.—The season was a very bad one for planting, as it was so dry and windy, but we planted

CENTENNIAL PARK.

(Mr. J. Dawes, Superintendent.)

Weather.—The rainfall for the year was below the average, viz., 4,675 points, the heaviest fall being in the month of January, 1,076 points; the lightest in June, 46 points. The greatest fall in 24 hours was on 11th–12th January, 432 points. On the whole it was the driest year for many years past, the latter part being droughty, the lakes drying up and vegetation in general suffering severely. As may be imagined, bush and grass fires were very frequent, doing much damage to newly-planted trees and the native bush. Many fires were wantonly caused by gangs of larrikins, who seem to frequent the Park in ever greater numbers; most of them are of military age.

Lakes.—Advantage was taken of the dry conditions to clear out the vast accumulation of reeds; also from the Kensington ponds considerable quantities of old tins, bottles, branches, and the remains of dead animals. Evidently many people think it is the proper place for dumping all kinds of filth and rubbish. This is mostly done under cover of night. The work of clearing the rubbish entailed much labour and carting; many hundreds of loads had to be dumped around the banks to be further dealt with when decayed. Extra labour, horses and drays had to be employed for this work, making a very heavy drain on a Contingency Vote already reduced. It may be mentioned that unless a considerable sum of money is rendered available for the purpose of clearing out huge quantities of accumulated silt, much of the beauty of the Park will be no more if the fine sheets of water are lost to view. The principal cause of accumulated silt is from the outfall of surface drains from the badly kept roads of the Randwick and Waverley Councils, and although this has been frequently pointed out to these bodies, they have not as yet shown much inclination to face their responsibility.

Rosery.—Considerable remodelling and planting had to be done in this section, principally owing to the great number of deaths amongst the plants, brought about by the abnormally wet season of 1917. As is known, the site of the garden is adjoining one of the lakes, and as this lake was over full the greater part of the year, the outer border and low-lying beds became waterlogged, and the roots of the plants rotted away. I may mention that the varieties least affected were those of the Polyantha and Wichuriana section. To obviate this, drains were put in and the beds and borders raised. Upwards of 2,000 new plants were put in, planted in clumps of eighteen of one variety, in order to get a better colour effect by massing distinct colours. On the outer line Orleans and dwarf varieties of Polyantha are planted, which lengthens the period of blooming. This scheme of planting has had the desired result—the climbing roses on the fence, arches and pillars flowering most profusely, and the place was as popular with visitors as ever.

New Flower Garden.—The piece of ground adjoining the Rosery, known as the "native section," was demolished, because with the other local facilities for Nature study the schools did not use it as much as formerly. It was thought desirable to plant a flower garden on the acre of ground; large beds (some of them 60 x 30 feet) were laid to a design, with 30-feet grass paths intersecting, with the intention of

In August, Mr. Henry Waters was appointed gardener to attend to the various Departmental gardens in the city, under the supervision of the Outer Domain Superintendent. He had previously been employed as gardener for several years at "Cranbrook," the late Government House at Rose Bay.

Outside Duties.—The Superintendent visited the Returned Soldiers' Settlements at Bankstown and Seven Hills, to advise in regard to the planting of trees in the streets and for shade in other parts. Visits have also been paid to the Dacey Garden Suburb for a similar purpose, and also to judge the gardens in the competition held in October. Supervision has been given to the Departmental gardens in the city and to the Metropolitan Abattoirs gardens at Homebush.

INNER DOMAIN.

(Mr. F. Clarke, Superintendent.)

Weather.—The year was ushered in with an abundant rainfall, a monsoonal disturbance in the month of January being responsible for 940 points, while the months of May, June and part of July were the driest on record since 1895. Southerly and westerly winds prevailed up to the end of October. The Macquarie-street area suffered most owing to its exposed and dry situation, but by constant use of the hose as good display as possible of bloom was kept up, despite the extreme dry conditions experienced during the latter half of the year.

General.—Portion of the Inner Domain on the Macquarie-street area taken over by the Railway authorities for the city railway scheme was handed back to us on 14th June. The unsightly fence having been removed, the lawn was graded up to its original level, the break in the palm border was made up, four palms (*Phoenix canariensis*) being re-planted, together with six trees of *Eucalyptus ficifolia*. In addition, other native trees, *E. calophylla*, *E. cinerea*, *Brachychiton acerifolia*, *Castanospermum australe* and *Erythrina indica* were set out. In a few years when the trees have time to grow and the beds fill up with flowering plants, this part of the Domain should be one of the most pleasing and attractive sights near the city.

Some spoil from excavations in the city becoming available, opportunity was taken to top-dress and fill up depressions on the area facing the Tarpeian Way, 2,000 loads being deposited. The area is by no means left in a finished condition, a great deal of labour being still necessary before it can be said to have received its finishing touch.

Pruning.—A heavy pruning became necessary owing to the excessive growth brought about by the mildness of the weather and the abundant rains in the earlier part of the year. Wherever necessary, old shrubs were removed and new stock planted instead.

Planting.—Thirteen dozen new roses were planted about the grounds to fill up vacancies and to

The collections under Ecology and Morphology have been augmented, and a section representing Seed Dispersal established. The nucleus for the new section was provided by a series of drift fruits from our local beaches, gathered by Miss Lily Parkes, and a collection by Mrs. R. D. Rhone, from Nauru and Ocean Islands.

LIBRARY.

(Miss R. M. Breading, Librarian.)

Owing to the shortage of paper, the Library Report is not printed this year.

All publications received have been entered on cards and stamped, and placed on shelves under their various subjects.

OUTER DOMAIN.

(Mr. W. Grant, Superintendent.)

General.—The early part of the year was remarkable for the continuance of favourable climatic conditions that had prevailed during the latter part of 1917, and, in consequence, most of the labour available was occupied in keeping the large grass areas mown until well into the winter, when sharp frosts were experienced, which checked the growth considerably. Seasonable rains fell during August that gave promise of another favourable season. Only the early spring months, however, were conducive to plant growth, for after September dry and windy conditions prevailed to the end of the year. As a result the grass dried up, and many of the deciduous trees, that had been a beautiful sight the previous season, became unsightly owing to the drying of the foliage. Several trees, in fact, where the soil is shallow, shed their leaves prematurely.

A large portion of the playing area, on which the grass had become worn by the traffic during Sunday meetings, was broken up and re-planted with couch grass.

A new building to house the portable tower ladder used in connection with the pruning of large trees was erected by the carpenter.

Anzac Buffet.—This institution has been well used by returned soldiers during the year, the average daily attendance being about two hundred.

Since the Buffet has been used for the reception of returning soldiers on their arrival home from the war, about twenty-four thousand have passed through the gates up to the end of the year, and fully one hundred thousand relatives have attended the grounds to meet them.

Plantations.—These have been kept in good order throughout the year, and where planted with the view of creating colour effect, the plantations have been gay with flowers. In particular the Hibiscus enclosure may be mentioned, for the dry season that has prevailed since September was ideal for this heat-loving subject. The Azalea border, too, presented a very fine sight in the early spring months.

Ward, E. N.

The Mexican Apple (*Casimiroa edulis*) in the Botanic Gardens (*Agric. Gaz. N.S.W.*, xxix, 134–135, 1918).

Tagasaste and the Gacias growing in the Botanic Gardens (*Agric. Gaz. N.S.W.*, xxix, 283–284).

The Chinese Wood-oil Tree (*Aleurites Fordii* Hemsl.) (*Agric. Gaz. N.S.W.*, xxix, 437–439).

BOTANICAL MUSEUM.

(Mr. A. A. Hamilton.)

During the year, 102 specimens were added to the Museum.

Specimens presented.

Baker, F. C., Los Banos, Philippine Islands; Bancroft, Dr. T. L., Eidsvold, Q.; Banfield, E. J., Dunk Island, Q.; Beuzeville, W. A. W. de, Forestry Office, Sydney; Bick, E. W., Botanic Gardens, Brisbane; Blackett, R., South Grafton; Blakely, W. F., Hornsby; Boorman, J. L., Botanic Gardens, Sydney; Boyd, G., Forestry Office, Tumbarumba; Broadfoot, A., 23 Hatton-street, Manly; Bruce, R., Botanic Gardens, Sydney; Burns, Philp and Co. Ltd., Sydney; Campbell, R. H., Ungella, Tweed River; Clark, Miss, Commonwealth Bank, Sydney; Chisholm, J. R., "The Plains," Prairie, Q.; Doody, W. H. G., Devon, Duke-street, Kensington; Dudley-Jones, Miss, Nymboidea; Fauntleroy, C. A., Uberin Hill, Dowerin, W.A.; Force, J. M., Narrandera; Garling, H. W., Forest Office, Forbes; Gill, W., Conservator of Forests, Adelaide; Grasby, W. C., Perth, W.A.; Hedley, C., Australian Museum, Sydney; Lawrence, A. H., Urunga; Melville, Miss, "The Avenue," Birrell-street, Waverley; Parke, Davis & Co., Sydney; Robinson, R., Barcaldine, Q.; Spark, A. P., 12 Castlereagh-street, Sydney; Slate, Dr. G. M., New Hampshire, U.S.A.; Steel, T., Pennant Hills; Thorpe, W., Australian Museum, Sydney; Tonduy, Signor, San Jose, Costa Rica; Washington, F. G., Agricultural Department, Giza, Egypt; Weston, C., Canberra; White, H. L., Scone.

Teratology.—The classification of this collection is now approaching completion. A special collection has been made of specimens of trees, principally Eucalypts and Acacias infested with galls, and we are indebted to Dr. J. B. Cleland, Mr. W. D. Campbell, and Mr. W. A. W. de Beuzeville in particular for extensive contributions to this section. The following specimens showing various malformations have been presented :—

Acacia Burkittii—Broken Hill, E. C. Andrews.
Acacia continua—Broken Hill, E. C. Andrews.
Acacia implexa—Normanhurst, W. F. Blakely.

PUBLICATIONS BY THE DIRECTOR AND STAFF DURING 1918.

Maiden, J. H.—

Forest Flora of New South Wales (One shilling per part) :—

Part LXII.

No. 227. The Flame Tree (*Brachychiton acerifolius* F.v.M.).
No. 228. Murray Red Gum (*Eucalyptus rostrata* Schlecht).
No. 229. Mabel's Wattle (*Acacia Mabellae* Maiden).
No. 230. White Bottle Brush (*Callistemon salignus* DC.).
No. 231. *Callistemon brachyandrus* Lindley.
Appendix.—Adventitious Roots (including notes on Stilt-roots, Lenticels, Pneumatophores; Swamp Plants).

(Vol. vii, Part 2, pp. 39–75, 4 plates, photos. 17.)

A Critical Revision of the Genus Eucalyptus (Two shillings and sixpence per part) :—

Part XXXIV.

No. 172. *Eucalyptus redunca* Schauer.
No. 173. *Eucalyptus accedens* W. V. Fitzgerald.
No. 174. *Eucalyptus cornuta* Labill.
No. 175. *Eucalyptus Websteriana* Maiden.

(Vol. iv, pp. 93–110, Plates 140–143.)

Part XXXV.

No. 176. *Eucalyptus Lehmanni* Preiss.
No. 177. *Eucalyptus annulata* Benth.
No. 178. *Eucalyptus platypus* Hooker.
No. 179. *Eucalyptus spathulata* Hooker.
No. 180. *Eucalyptus gamophylla* F.v.M.
No. 181. *Eucalyptus argillacea* W. V. Fitzgerald.

(Vol. iv, pp. 112–135, Plates 144–147.)

A Contribution to a History of the Royal Society of New South Wales. (*Proc. Roy. Soc. N.S.W.*, lii, 215–361, 1918.)

Notes on *Eucalyptus* No. VI (with descriptions of two new species, in co-operation with Mr. R. H. Cambage). (*Proc. Roy. Soc. N.S.W.*, lii, 486–519, 1918.)

The Tropical Acacias of Queensland. (*Proc. Roy. Soc. Queensland*, xxx, 18–51, plates i–vii, 1918.)

Weeds of New South Wales. Thorn Apple or False Castor Oil Plant (*Datura stramonium* L.) (*Agric.*

PUCCINIACEAE.

Uromyces sp. (?) on leaves of "Epicure Beans"—Richmond, C. T. Musson.
Cronartium jacksoniae P. Henn. On *Jacksonia scorapia* R.Br.—Near Warialda, G. Burrows.

In addition to the above, specimens of *Cerebella sp.* on *Heteropogon contortus* were forwarded from Fiji by Mr. W. Greenwood, and some Eucalyptus seedlings from the propagating ground were brought in by Mr. R. Tate, which were affected with a whitish fungus closely allied, if not identical with a species of *Erisiphe.*

Our collection has been further augmented through the receipt of a fine collection, 185 species, from C. F. Baker, of the Philippine Islands, including 100 species of Malay fungi and a number from Singapore. We have also received from M. N. Patouillard a collection of 20 European fungi, and 139 species of selected desiderata from Mr. G. L. Fisher.

In exchange, we have forwarded 106 species of Australian fungi to Mr. C. F. Baker, 33 species to M. N. Patouillard, and 80 species to Mr. C. G. Lloyd.

Algae.—Mr. A. H. S. Lucas, in honorary charge of this section, reports :—

Professor Dakin, of Perth, forwarded the collection of Algae gathered by the Percy Sladen Expedition to the Houtman's Abrolhos. These are in process of determination and description, in preparation for a report upon them to be published in the records of the Expedition.

A large collection of British Algae, including one-third of the known species, was presented to the Herbarium by Mr. H. Drane, M.A., F.L.S.

Various specimens of economic importance were submitted to the Director from country centres, and were investigated and reported on by the Hon. Curator.

Ferns and Mosses.—Mr. T. Whitelegge, in honorary charge of these sections, reports :—

During the year a large and valuable collection of ferns from Roberts Plateau, Queensland (Macpherson Range, N.S.W. border), was received from Dr. J. Shirley, of Brisbane. The collection comprises about thirty species, and in most cases each species is represented by a carefully selected series of specimens, affording valuable material for comparative study, especially in regard to some of the critical species.

Mr. E. Cheel, during a brief visit to Fiji, made a large collection of ferns and allied plants. The collection contains about forty species, including some which were unrepresented in the herbarium. One in particular, *Mesochlaena polycarpa* Bl., appears to be an addition to the collection, and probably also to the flora of Fiji.

[illegible] ferns from Queensland, including some living

NATIONAL HERBARIUM.

(Mr. E. Cheel, Botanical Assistant, Senior; Messrs. A. A. Hamilton and W. F. Blakely, Botanical Assistants.)

The Botanical Collector, Mr. J. L. Boorman, has visited several localities for special desiderata, and at the same time to replenish our exchange material. These include Wallangarra, Yalgogrin, Bourke to Nyngan, Cobar, Lake Cudgellico, West Wyalong, Newbridge, Georges Plains, Blackheath.

We have received certain special desiderata during the year, including five sheets of *Loranthus* from the Curator of the Calcutta Herbarium, several drawings of rare species from Kew Herbarium and from the British Museum; and Mr. C. T. White, Government Botanist of Queensland, has very kindly sent specimens of rare plants for purposes of special investigation. From Professor A. J. Ewart, Melbourne, we have received specimens of twenty-four species of new or rare plants, chiefly from the Northern Territory, and in addition to these we are indebted to him for the loan or gift of other valuable specimens. Dr. R. S. Rogers, of Adelaide, has also kindly forwarded specimens of several species of new or rare Australian Orchids, which are valuable additions.

Exchanges.—We have despatched 1,383 sheets of Australian plants, including special desiderata, and in return have received 1,914 sheets by actual exchange as well as 3,852 sheets as donations, which makes a total of 5,766 sheets received from various sources.

In the donations we are specially indebted to Mr. C. Bailey, M.A., of Haymergarth, Cleeve Hill, Gloucester, England, for a collection of 2,628 sheets of British plants, being a profuse and valuable return for a small collection sent by the Director in 1883, and which had been overlooked; also to Messrs. Dixon and Byrne, for a collection of 415 sheets, chiefly of New South Wales plants, from the herbarium of the late W. A. Dixon.

Dr. R. H. Pulleine has also presented about 200 sheets, chiefly from Western Australia, of undetermined plants.

During a visit to Fiji in July and August, Mr. Cheel made a collection of the flora, and has been working at it as time permitted. The collection may be roughly estimated at about 200 species, including some interesting fungi and lichens. Several of these are new for our herbarium.

We have also received sixty-four sheets of specimens from the herbarium of the late Rev. Copland King, which are useful additions to our Papuan collection.

Lichens (E. Cheel).—A few specimens have been sent in for determination, the most noteworthy of which are as follow:—*Parmeliopsis semiviridis* Nyl., from Cooma, collected by Mr. J. A. Sellar in September, 1918, and the var. *major* Mull. Arg., collected at Cane Grass Station, in South Australia, by Mr. L. Radford in August, 1918, and on the Nullarbar Plains, East-West Railway, by Dr. R. Pulleine in December, 1917. From Victoria, chiefly from the neighbourhood of Wycheproof, we have received a few from the Rev. W. W. Watts, including the var. *major* of *Parmeliopsis semiviridis*.

The Great War.—Enlistment, A.I.F., 1918.—Mr. J. B. Lawson, Gardener, Botanic Gardens.

Honours, Military, 1918.—Lieutenant R. G. Downing, Scientific Cadet, won the Military Cross.

Killed in Action.—Gunner Steve Grugeon, Scientific Cadet, was, I regret to say, killed in September, 1918, whilst on active service in France.

Returned from Active Service.—Messrs. W. Ryan, W. Ransley, S. J. Smith, and C. Clark returned from active service, and have resumed duty.

Obituary.—Private W. H. Malthouse, who was reported last year as having been taken prisoner of war, died at Gustrow, Germany, in December, 1918. He was employed in these gardens for twenty years, and was universally respected.

Miss A. M. Jenner died on the 23rd February, 1918, after a brief illness. She was employed first as Clerk, and afterwards as Shorthand-writer and Librarian, Botanic Gardens, from the 19th December, 1904, to the date of her lamented death. Part of her work was to attend to dictated correspondence, and it was attended to with the greatest intelligence and care. I never knew her to say an unkind word of a member of the staff. Most zealous in the performance of her duties, she was a model librarian. I personally grieve for her loss, and every member of the scientific and clerical staff has borne testimony to her worth.

Mrs. Fox, temporary Lavatory Attendant, Botanic Gardens, died on the 13th September, 1918, after a short illness. Mr. O. Thornber, temporary Gardener, Botanic Gardens, died on the 13th January, 1918. Both were zealous public servants, who did their best.

Changes in the Staff.—Miss R. M. Breading was transferred from the office of the Public Service Board to the post of Librarian and Shorthand-writer, Botanic Gardens, in place of the late Miss Jenner. She joined on 1st May, 1918.

Mr. J. M. Forrest, Gardener, Botanic Gardens, resigned his position on the 30th April, 1918. Mr. Preddey, formerly Gardener, Botanic Gardens, and who had been acting as temporary Gateman for three years, went on extended leave of absence in August, 1918, prior to retirement. Mr. A. Godby, temporary Gardener, Botanic Gardens, resigned on the 17th August, 1918. Mr. J. J. Emmans was appointed temporary Gardener, Botanic Gardens, on the 11th February, 1918. Mrs. Douglas, temporary Cleaner, Botanic Gardens, was transferred to the State Children Relief Department on the 1st September, 1918, and was succeeded by Miss H. Ford. Mrs. Kearney, temporary Lavatory Attendant, Botanic Gardens, was replaced by Mrs. Latham on the 1st June, 1918. Mrs. Latham resigned on the 31st October, and Mrs. Douglas was re-transferred to the position of temporary Lavatory Attendant. Mrs. Paterson was appointed to the position of temporary Lavatory Attendant in place of Mrs. Fox, deceased.

Mr. E. S. Poulton, temporary Herbarium Attendant, resigned on the 2nd March, and was replaced [illegible] Printing Office on the 1st May. Mr. A. A. West, temporary

Despatched.

Anderson & Co., Ltd., Sydney; Boggabri Public School, N.S.W.; Bourke-street Public School, Sydney; Bureau of Plant Industry, U.S.A. Department of Agriculture; Condon Park Methodist Church, N.S.W.; Crystal-street Public School, Petersham, Sydney; Coolamon Public School, N.S.W.; d'Alpuget, J. A., Sydney; Earp, Hon. G., M.L.C., Sydney; Edgely, Mrs. J., Rockhampton, Queensland; Government Viticultural Nursery, Mirool, N.S.W.; Heron, W., East Dorrigo, N.S.W.; Lacy, H. L. de, Willoughby, Sydney; Mouncey, Mrs. de, Fiji; Parke, Davis & Co. Ltd., Sydney; Robbins, J., Kingston, N.S.W.; Stanmore Public School, Sydney; Sydney Hospital; Teachers' College, Sydney; Ultimo Public School, Sydney.

Living Plants Distributed.

Institution.	No. of Consignments.	Trees.	Shrubs.	Miscellaneous Plants.
Municipal and Shire Councils	25	866	80	644
Hospitals	16	436	475	733
Public Schools	13	300	232	54
Experiment Farms	10	9	72	363
Churches of England	9	150	232	24
,, Catholic	6	192	129	6
,, Methodist	4	53	216	102
,, Congregational	4	84	36	12
Convents	6	60	355	12
Parks and Recreation Reserves	7	249	119	.....
Water Board Depôts	7	120	143	.....
Colleges	6	55	36	22
Agricultural Societies	3	120	.....	.....
Cemeteries	3	50	60	6
Dacey Garden Suburb	3	90	8	.....
Soldiers' Honour Avenues	3	78	.....	.....
Fire Stations	2	48	144	.....
Police Stations	2	6	72	.....
Tram Depôts	2	.....	20	7
Miscellaneous	23	290	261	615
Total	154	3,256	2,690	2,600

Trees	3,256
Shrubs	2,690
Miscellaneous Plants	2,600

General Office.—Mr. R. Nichol, Secretary, reports as follows:—

Correspondence, 1918.

	Number.	Increase.	Decrease.
Letters registered	5,800	...	2,672
,, despatched	5,587	...	926
Post-cards ,,	300	...	25
Parcels ,,	67	...	51
Departmental Orders	488	7	...
Requisitions, &c.	100	...	183

Owing to the introduction of further labour-saving devices, the separate records have been diminished in number, and do not afford a comparison with the preceding years.

Seeds Received and Despatched.

BOTANIC GARDENS.

Received.

Amsterdam, Holland; Brisbane, Queensland; Buitenzorg, Java; Caen, France; Hobart, Tasmania; Kew, England; Kirstenbosch, South Africa; Lawang, Java; Melbourne, Victoria.

Despatched.

Buitenzorg, Java; Caen, France; La Mortola, Italy; Lawang, Java; Tokyo, Japan.

OTHER BOTANICAL ESTABLISHMENTS.

Received.

Bureau of Plant Industry, U.S.A. Department of Agriculture; College of Agriculture, Honolulu, Bureau of Agriculture, Los Banos, Philippine Islands; Giza Mouderiah, Ministry of [illegible] Wanganui Scenery Preserva-

Eucalyptus corymbosa.
,, *cosmophylla.*
,, *crebra.*
,, *Dawsoni.*
,, *decipiens.*
,, *decorticans.*
,, *decurva.*
,, *dichromophloia.*
,, *diversicolor.*
,, *diversifolia.*
,, *dives.*
,, *drepanophylla.*
,, *Drummondi.*
,, *Dunnii.*
,, *elaeophora.*
,, *erythrocorys.*
,, *erythronema.*
,, *eugenioides* var. *nana.*
,, *exserta.*
,, *eximia.*
,, *falcata.*
,, *fastigiata.*
,, *ficifolia.*
,, *Flocktoneæ.*
,, *foecunda.*
,, *fruticetorum.*
,, *gigantea.*
,, *Gillii.*
,, *globulus.*
,, *goniocalyx.*
,, *grandis.*
,, *Guilfoylei.*
,, *Gunnii.*
,, *haemastoma.*
,, ,, var. *micrantha.*
,, *hæmatoxylon.*
,, *hemiphloia.*

Eucalyptus obliqua.
,, *obtusiflora.*
,, *occidentalis.*
,, *ochrophloia.*
,, *odorata.*
,, *oligantha.*
,, *oleosa.*
,, *ovata.*
,, *pachyloma.*
,, *pallidifolia.*
,, *paniculata.*
,, *parramattensis.*
,, *parvifolia.*
,, *patens.*
,, *peltata.*
,, *phychocarpa.*
,, *pilularis.*
,, *Pimpiniana.*
,, *piperita.*
,, *platyphylla.*
,, *polyanthemos.*
,, *populifolia.*
,, *Preissiana.*
,, *propinqua.*
,, *pruinosa.*
,, *pulverulenta.*
,, *pulvigera.*
,, *punctata.*
,, ,, var. *grandiflora.*
,, *pyriformis.*
,, *radiata.*
,, *Raveretiana.*
,, *redunca.*
,, *regnans.*
,, *resinifera.*
,, *Risdoni* var. *elata.*
,, *robusta.*

Seventy-five plants of a hybrid Cereus, *C. MacDonaldise* X *C. speciosissimas.*

Forty-seven plants of Phyllocactus, consisting of twenty-five named imported hybrids and twenty-two Grantham hybrids.

Collections of Lachenalia, Hemerocallis, Richardia, Narcissus, Iris, and Nerine.

Seven hundred bulbs, chiefly bigeners and hybrids related to Brunsvigia, Iris, Moraea, Amaryllis, Calostemma, Crinum, Haemanthus, Hippeastrum, Lilium, Narcissus, Zephyranthes, Lycoris, Hemerocallis, making a valuable example of a clever hybridist's work.

This large collection of plants and bulbs, approximating 10,000, is a gift to the State that would be difficult to assess in money value, in terms of cash, because of its high scientific value alone, apart from its horticultural value.

New Plants.—Plants newly introduced into the Gardens are *Montanoa hibiscifolia, Caesalpinia tinctoria, Passiflora maliformis, Convolvulus scoparius, Eucephalartos Macdonnelli, Tecoma Brycei* (Syn. *T. Reginae*), and *Rhamnus Purshiana.*

Succulents.—The following succulents have been added to the Gardens collection :—

Sedum Sieboldii Sweet.
,, *alpestre* Vill.
,, *Palmeri* Wats.
,, *Selskianum* Rgl.
,, *spurium* Bieb.
,, *Telephium* L.
,, *populifolium* Pall.
Aloe longibracteata P. Evans.
,, *Thraskii* Baker.
,, *aculeata* P. Evans.
,, *Davyana* Schoenl.
,, *ferox* Mill.
,, *dichotoma* L.
,, *Wickensii* P. Evans.
,, *rubro-lutea* Schinz.
,, *Pienarli* P. Evans.
,, *candelabra* Berger.
,, *arborescens* Mill. var. *Milleri* Berger.
,, *Bortiana* Terr. fil.
,, *eru* Berger.

Sempervivum arachnoideum L.
,, ,, var. *Dallianum.*
,, *Verloti* Lamotte.
,, *Berthelotianum* Christ.
,, *chlorochrysum* Hort.
,, *glutinosum* Ait.
,, *hybridum* Haw.
,, *Smithii* Sims.
,, *viscatum* Berger.
,, *youngeanum* Christ.
Gasteria acinacifolia Haw.
,, *angulata* Haw.
,, *brevifolia* Haw.
,, *carinata* Haw.
,, *maculata* Haw.
,, *obtusifolia* Haw.
,, *subverrucosa* Haw.
,, *verrucosa* Haw.
Euphorbia aphylla Brouss.
,, *biglandulosa* Desf.
,, *Bivonæ* Steud.

difficulty in maturing by the end of autumn. No harm occurs to the tubers by leaving them in the soil through the winter, but this is not recommended where there are ground frosts, neither should the tubers be stored where frosts could affect them.

A row was planted in poor soil, without manure or artificial watering, at the same time as the thirty-six selected tubers, but they did not grow quickly enough to mature, and in midsummer suffered badly from aphis, but, left alone, it is believed they will mature a good crop in two years, or twenty-one months.

A further use of the Dasheen is in the forcing and blanching of its shoots. In America, large quantities are forced under glass and the shoots, about 7 inches long, bunched and sent to market to be eaten like asparagus. Large corms are used for this purpose, covered with a light sandy soil, the necessary factors being heat, moisture and darkness.

A trial was given by planting three corms weighing 2 lb. each, kept dormant till December in white sand mixed with a little sphagnum moss in the open ground, and over these was placed a 12-inch drain pipe with a bag on the top. Shoots 6 inches long were cut in twenty-seven days, and at intervals of eight days for six weeks. At each cutting they were watered with warm water so as not to check the growth, as the heat conserved in the pipe must have been near 100 degrees. The shoots were cooked, eaten, and proved all that was recommended.

The plant is decorative, is easily grown, and would make an excellent vegetable in districts where only one crop of potatoes can be grown in a year. It should not be confused with other varieties of Taro from Japan and China. It is a fine-flavoured variety of the Taro, eats with a nutty flavour, is very mealy, and has more robust foliage than the common Taro, which eats mushy and wet and is rarely relished by Europeans.

As a stock feed the United States Agricultural Year Book for 1916 states that "they seem, in a raw state, to be more palatable to stock than potatoes, as, while doubtless less palatable than sweet potatoes, they contain a higher proportion of protein to starch and sugars than sweet potatoes. Both cattle and hogs eat them with relish after getting the taste, and pigs eight months old have been fattened for the market in a month by turning them in the autumn into a patch of Dasheens."

Drug Plants.—Cultural trials have been given the following drug plants:—*Rhamnus Purshiana* DC., the Cascara Sagrada; this requires to be grown without a check from the seed pan; it soon becomes stunted in pots, when growth from this state is very slow.

Atropa Belladonna L. was sown in autumn and planted in spring, made good growth during the summer, and was allowed to die down. The plants commenced to grow from strong crowns in June and made a fair crop of foliage by fruiting time, which, when submitted for assay, proved to be suitable as regards active principle. The roots, however, had not developed sufficiently for commercial purposes.

Hyoscyamus niger, Henbane, sown in August in a drill in the open ground, grew quickly to flowering in four months; this also, when assayed, contained sufficient active principle.

Urginea maritima L., Squill, responded quickly to feeding, [illegible]

A Physiological Problem.—A sample of culinary peas with specimens of the haulm in fruit was submitted for determination in 1917. These were determined on examination and corroborated by leading seed warehousemen as Yorkshire Hero. This naming, however, being taken exception to, the sample was sown and another sample of guaranteed Yorkshire Hero was purchased and sown alongside at the same time. The bought seed produced typical Yorkshires. The seed under question grew most robustly to the height of 6 feet before flowering, and then did not pod. They produced a few pods at the height of 10 feet, and in a few cases began to stool at the base, and yet, although the fruit, pods, and flowers resembled the type, the haulm was altogether out of character. Seeds were saved from both rows and re-sown, with the result that both produced typical Yorkshire Heroes. This matter, when brought before the Agricultural Section of the Royal Society of New South Wales, so interested the members present that the above trials were repeated this year with exactly the same result. Unfortunately for the growers, no controllable cause has been deduced why this popular culinary pea should behave in this way.

Gladioli from Seed.—Some Gladioli seeds named Fordhook Hybrids were received for trial with the statement that they would flower from seed within four months. They were sown on 28th December, 1917, germinated, and were through the ground on 14th January, 1918. On 25th April, 5 per cent. were in flower, while a month later 75 per cent. of the seedlings were in flower, justifying the extraordinary statement. Further, they were allowed to die down gradually, were lifted when dormant at the end of June, planted again in July in good loam with a good dressing of well decomposed cow manure, when they flowered again profusely during November and December, or less than a year from seed. As a comparison, seeds from the Gladiolus "Halley" were sown on the same date, and, although these germinated within a month's time, they were only 4 inches high at the end of April, when the "Fordhooks" were 2 feet high and carried spikes 15 inches long.

Seeds from the Battlefields.—W. M. Carne, Scientific Cadet of this Department, on active service in Palestine, has sent various seeds of plants browsed upon by animals in the desert. These, after the most careful consideration as to the safety of introducing such plants, have been grown and handed over to the Agrostologist for trial on our most arid areas. Captain Bean sent seeds of Gramineae, Compositae and Papaveraceae, which were collected on the graves of Pozieres. Another soldier sent seeds of a very floriferous *Impatiens* collected from the grave of his friend, asking that plants be sent to the mother of his friend. There are several other instances of this kind, that, although they promise no scientific value, are being dealt with in a kindly way.

The Algaroba.—Large quantities of *Prosopis juliflora* DC. have been raised from seeds procured from Hawaii by Mr. C. G. Wade, Agent-General. These have for some time past been distributed by the Agrostologist to the Experiment Farms, and to correspondents in the warmer coastal districts, for trial as to the fodder value and other qualities.

The Mountain Papaw.—Seeds of *Carica candamarcensis* Hook f. were received from the Royal [illegible] in June, 1917. They germinated in July, and a row of fifteen was planted in a warm [illegible] the height of 8 feet, but only one plant

Botanic Gardens, Government Domains, Garden Palace Grounds, Centennial Park, and Campbelltown State Nursery.

Report of the Director and Government Botanist to The Honorable the Minister of Agriculture.

Botanic Gardens, Sydney.

I have the honor to submit the annual report of the Botanic Gardens, Government Domains, Garden Palace Grounds, Centennial Park, and State Nursery, Campbelltown, for the year 1918.

(Signed) J. H. MAIDEN,
Director of Botanic Gardens, &c., and Officer-in-charge, Centennial Park.

The Under Secretary and Director, Department of Agriculture.

BOTANIC GARDENS.

(Mr. E. N. Ward, Superintendent.)

The fourth year of the war commenced with even more need for economy, and greater perplexity as to how this could possibly be brought about, in view of the rising prices of everything. We had to continue our paths with a short allowance of tar, and our buildings were stinted of paint, and we went short of other things. Still, the seasons this year have been kind, and the Gardens never looked better. Chief of the new works carried out are as follow :—

Lawns.—The two lawns Nos. 2 and 3 in the Lower Garden have been thrown into one, the ballast of the path between was carted away, replaced with soil, and then turfed. This path was rarely used of late years, and the area is much more pleasing in one sweep of grass, needing less upkeep, while the change is appreciated by the public who like to congregate on the lawns not too far from the refreshment kiosk. Another necessary work was raising half of the largest lawn in the Gardens, No. 18, in the Lower Garden. An acre of turf was lifted, 1,500 loads of material carted in, and the turf relaid. This area during heavy rain was always more or less under water; it is now high and dry. Whenever an opportunity occurred throughout the year, a staff of men were employed digging out what has proved to be the worst of all lawn pests, *Paspalum dilatatum*. So quickly do isolated clumps of this grass grow that it requires much soil to make good the holes made in the digging out. Still, it has been proved during the last two years that a lawn, nine-tenths of which was Paspalum and the remaining tenth Buffalo grass (*Stenotaphrum americanum*), can be restored by constant mowing, never allowing the Paspalum to flower, feeding the lawn with good loam and an occasional dressing of sulphate of ammonia. By these means the Buffalo is [illegible] surface of the lawn. [illegible]

Report of Director of the Botanic Gardens, Government Domains, Garden Palace Grounds, Centennial Park, and Campbelltown State Nursery for 1918.

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1919.

LEGISLATIVE ASSEMBLY,

NEW SOUTH WALES.

REPORT OF DIRECTOR

OF THE

Botanic Gardens, Government Domains, Garden Palace Grounds, Centennial Park, and Campbelltown State Nursery

1919.

LEGISLATIVE ASSEMBLY.

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REPORT OF DIRECTOR

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Botanic Gardens, Government Domains, Garden Palace Grounds, Centennial Park, and Campbelltown State Nursery